



# Stone Matrix Asphalt

January 28, 2005  
NCAUPG Meeting  
Lafayette, IN

# SMA in Wisconsin

- Crusher Adjustments
- Plant Adjustments
- Design and Testing
- Paving Operations
- Rolling Patterns
- Compaction



# Wisconsin SMA Projects

Year	Total	Job	County
1991	1	Various	Various
1992	3	Various	Various
1993	5	Various	Various
1994	3	IH 894	Milwaukee
		IH 43	Milwaukee
		STH 21	Juneau
1995	2	USH 53	Chippewa
		USH 41	Washington
1996	1	USH 41	Winnebago
1997	1	IH 94	Eau Claire
2000	2	USH 41	Brown
		STH 29	Pierce
2001	2	IH 94	St. Croix
		IH 94	Dunn
2002	4	IH 94	St. Croix
		IH 43	Brown
		IH 90	Monroe
		USH 10	Clark



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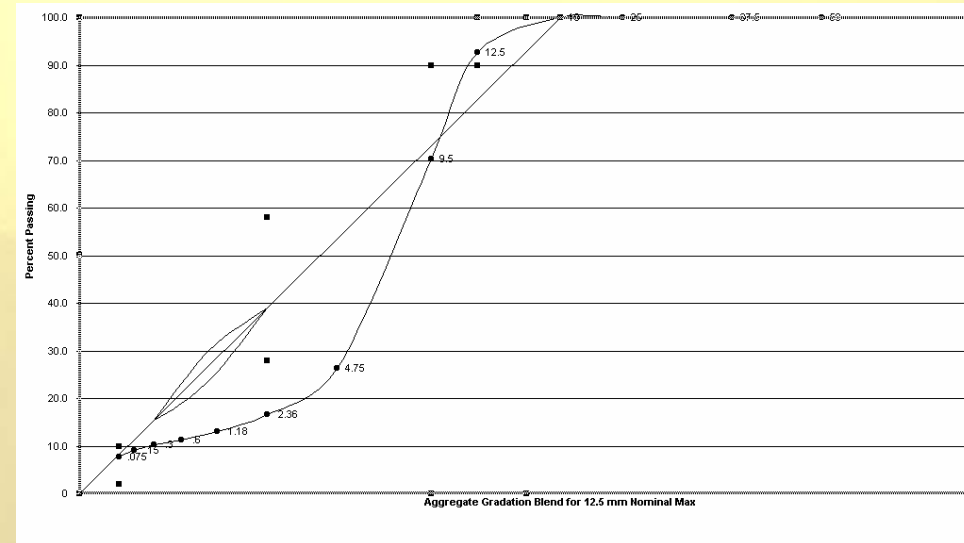
# Crusher Adjustments



- Impact crushers – ideal for cubical shaped particles
- Still want Thin & Elongated numbers to be in the teens otherwise problems with low VMA

# Crusher Continued

- 80% Chips
  - 30% 5/8" Chip
  - 50% 1/2" Chip
- 10-15% Man Sand
- 0-10% Screenings
  - It is vital to have **consistent products**
- 6-8% Mineral Filler
- Total P200 around 8%
- 0.3% Organic Fibers



# Plant Adjustments

- Portable set up located at our commercial plant - for efficiency & **consistency**
- We do not make other mixes while making SMA

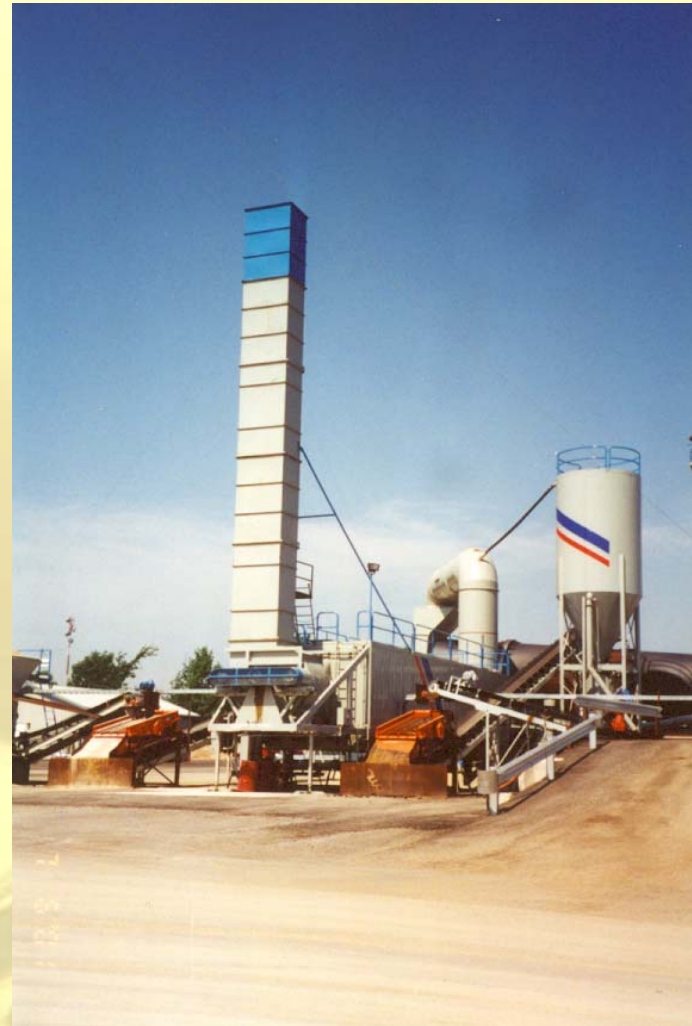






# Mineral Filler Silo

- % Mineral Filler as a product on the Mix Design to account for binder content
- Scale on Mineral Filler Silo needs to be calibrated
- Keep sufficient product in silo



# Mineral Filler Silo



- Augers have to be large enough to handle both bag house dust and additive
- If blowing - make sure it's being entrapped in mix and not airborne

# Fiber System

- Storage on site for all fiber
- Supply power to system and room to incorporate into plant site
- People to maintain the system and flow
- Control system - either tied into plant system or stand alone
  - need to be aware when the tons per hour changes on stand alone system
- Needs initial calibration

# SMA Testing



- Testing in the lab - Superpave mix design
- Profilographing in the field
- Taking Densities on the road
  - now modified



# Nuclear vs. Coring



- Nondestructive vs. Destructive
- Wisconsin tried other Nuclear options:
  - Slurry mix
  - Lower density targets
  - Warranty
  - Non-nuclear devices
- Now using test strip and coring method



# Nuclear vs. Coring



- Test strip and coring method:
  - 1000' test strip (after first 1000') to establish rolling pattern
  - Nuclear - open surface
  - Take cores to bulk for density and to show stone structure
  - Use density results from test strip as target for the rest of the project





# Paving Operations



- Used all Live Bottom tucks
- Did not see much segregation
- Used a Notched Wedge Joint

# Rolling Patterns

- 4 Loaded Static
- Hot Roller - Static DD130
- Intermediate - (2) Loaded Static Hyster 350 (14 ton)
- Finish Roller - Dynapac CS151 (Loaded 3 wheeler)





# Compaction

- 1 pass pattern
- Took density tests after each roller
- Did not gain any compaction after 125°F



# Questions

